The Aeronautics Research Mission Directorate - the First “A” in NASA

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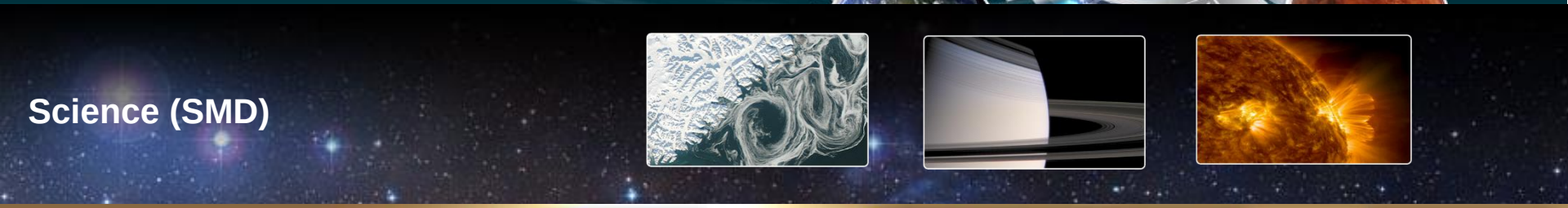
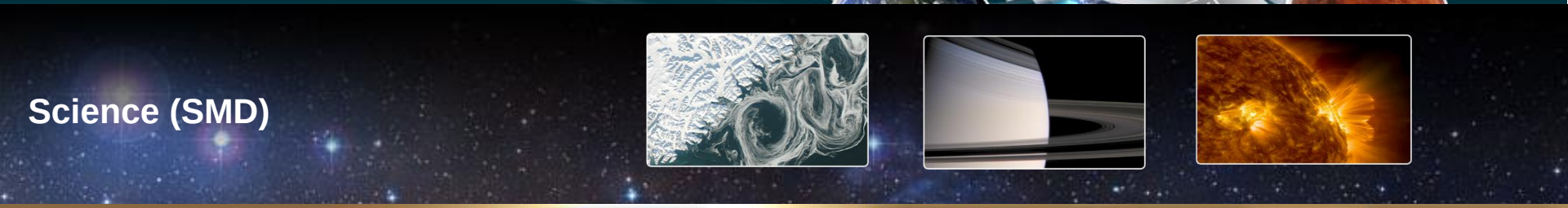
NASA Armstrong Flight Research Center
Aeronautics Research Mission Directorate
June 10, 2016

NASA Mission Directorates



NASA Mission Directorates



NASA Aeronautics

NASA Aeronautics Vision for Aviation in the 21st Century

6 Strategic Thrusts

- Safe, Efficient Growth in Global Operations
- Innovation in Commercial Supersonic Aircraft
- Ultra-Efficient Commercial Vehicles
- Transition to Low-Carbon Propulsion
- Real-Time System-Wide Safety Assurance
- Assured Autonomy for Aviation Transformation

U.S. leadership for a new era of flight

NASA Aeronautics Research Six Strategic Thrusts

1. **Safe, Efficient Growth in Global Operations**
   - Enable full NextGen and develop technologies to substantially reduce aircraft safety risks
2. **Innovation in Commercial Supersonic Aircraft**
   - Achieve a low-boom standard
3. **Ultra-Efficient Commercial Vehicles**
   - Pioneer technologies for big leaps in efficiency and environmental performance
4. **Transition to Low-Carbon Propulsion**
   - Characterize drop-in alternative fuels and pioneer low-carbon propulsion technology
5. **Real-Time System-Wide Safety Assurance**
   - Develop an integrated prototype of a real-time safety monitoring and assurance system
6. **Assured Autonomy for Aviation Transformation**
   - Develop high impact aviation autonomy applications

ARMD - Programs

AOSP – Airspace Operations & Safety Program

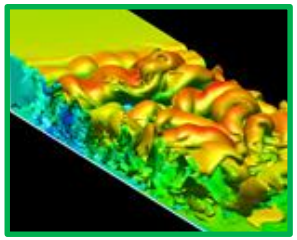
ATD - Airspace Technology Demonstrations

SMART-NAS - Shadow Mode Assessment Using Realistic Technologies for the National Airspace System

SASO – Safe Autonomous Systems Operations

TACP – Transformative Aeronautics Concepts Program

CAS - Convergent Aeronautics Solutions



TTT - Transformational Tools and Technologies

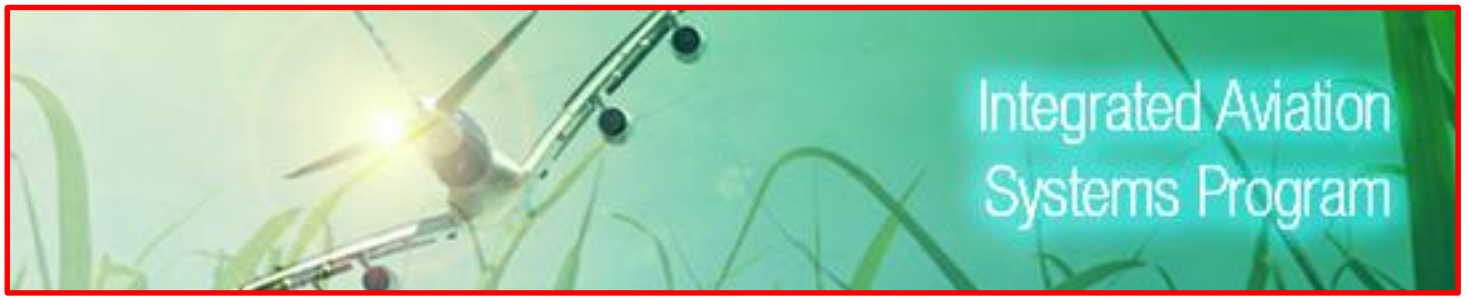
LEARN - Leading Edge Aero Research for NASA

IASP – Integrated Aviation Systems Program

ERA – Environmentally Responsible Aircraft

UAS in the NAS – Unmanned Aircraft Systems Integration in the National Airspace System

FDC – Flight Demonstrations and Capabilities



Coming in FY17 - New Aviation Horizons (NAH)

AAVP – Advanced Air Vehicles Program

AETC – Aeronautics Evaluation and Test Capabilities

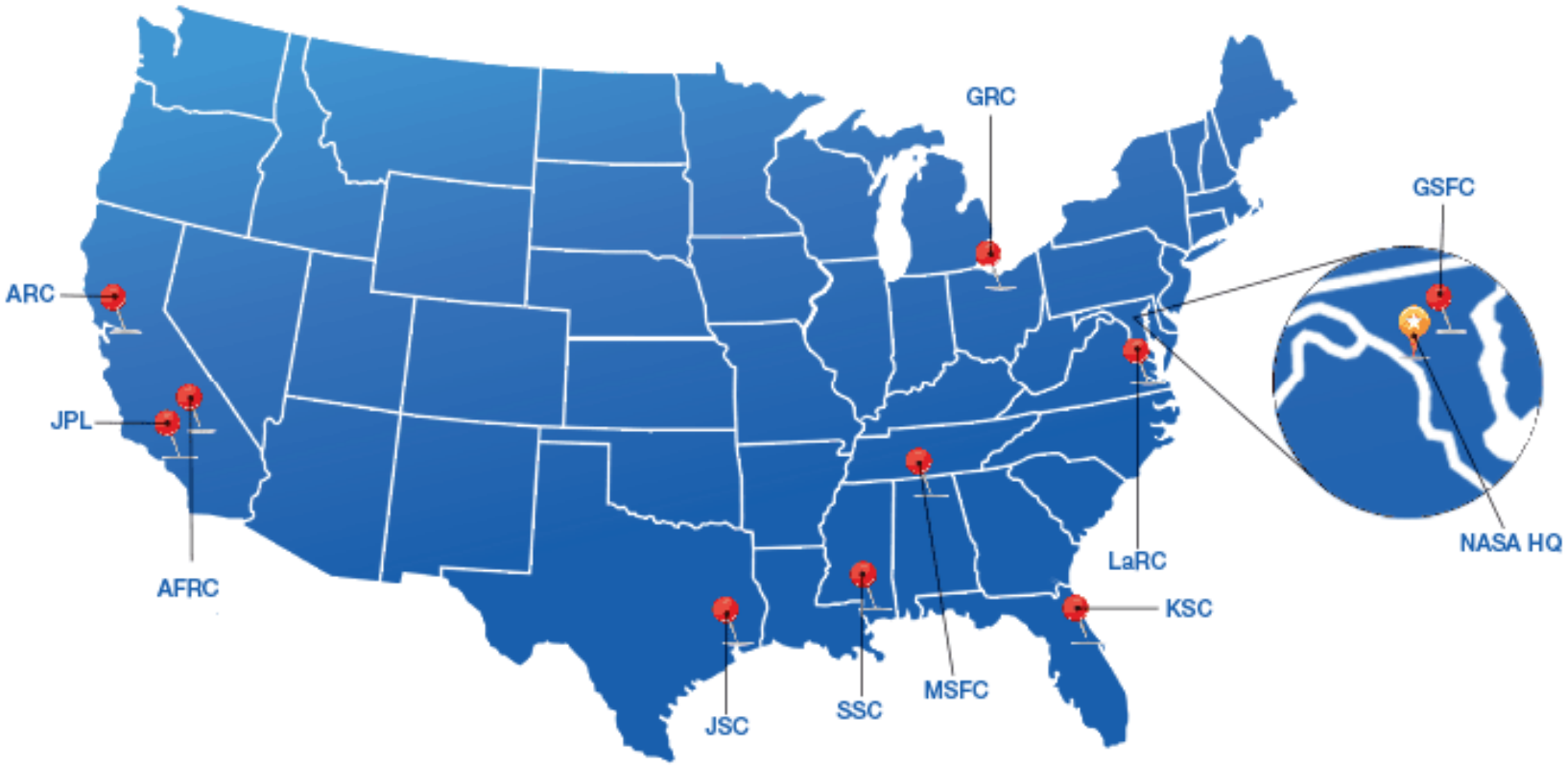
AATT – Advanced Air Transport Technology

AC – Advanced Composites

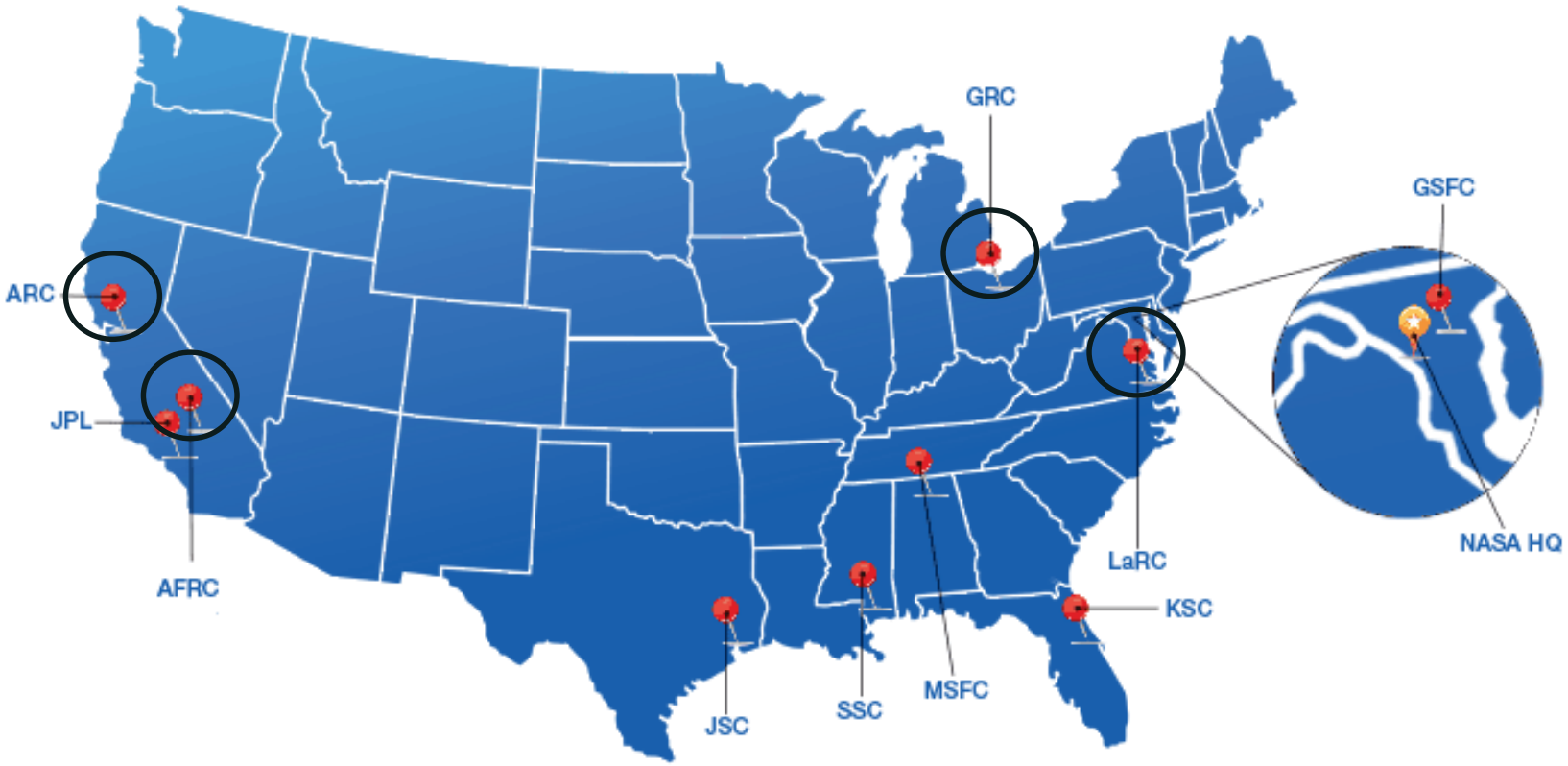
CST – Commercial Supersonic Technology

RVLT – Revolutionary Vertical Lift Technology

NASA Centers - ARMD

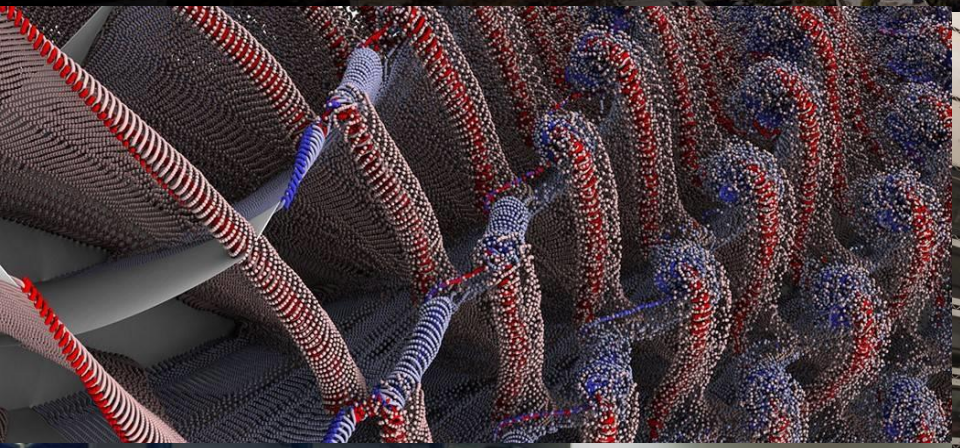


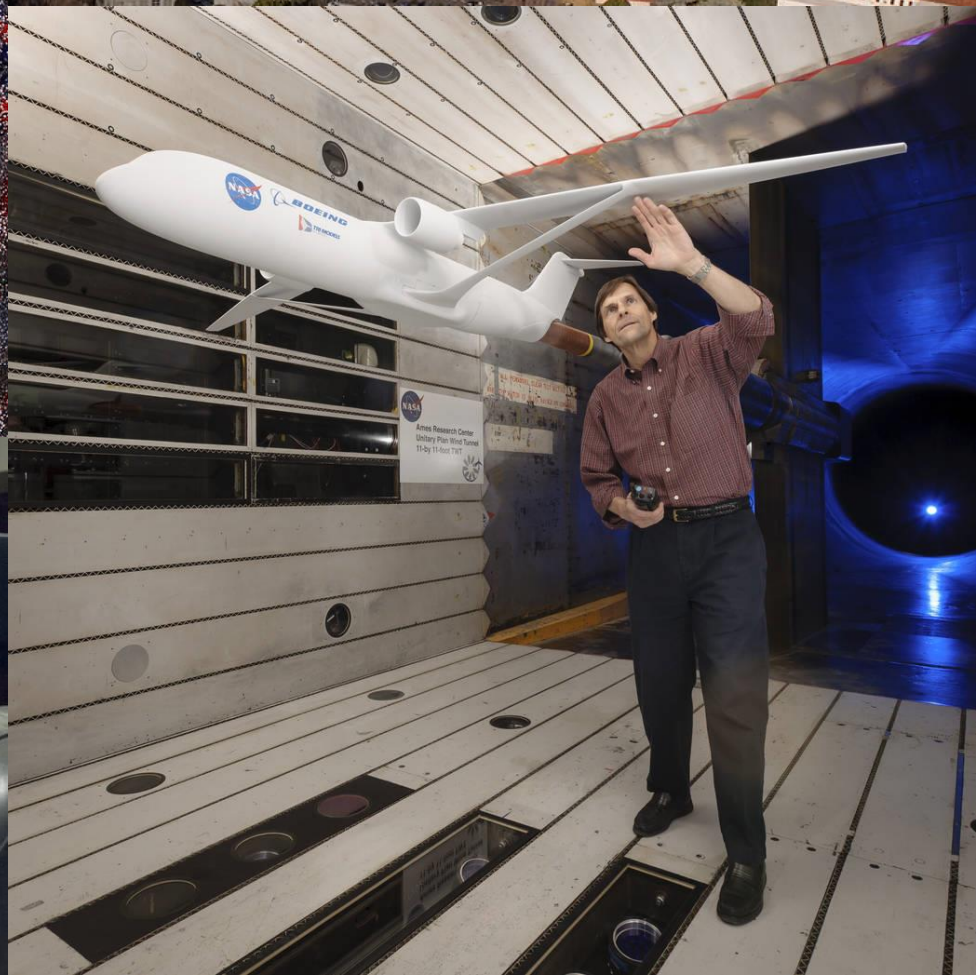
NASA Centers - ARMD



NASA Centers - ARMD

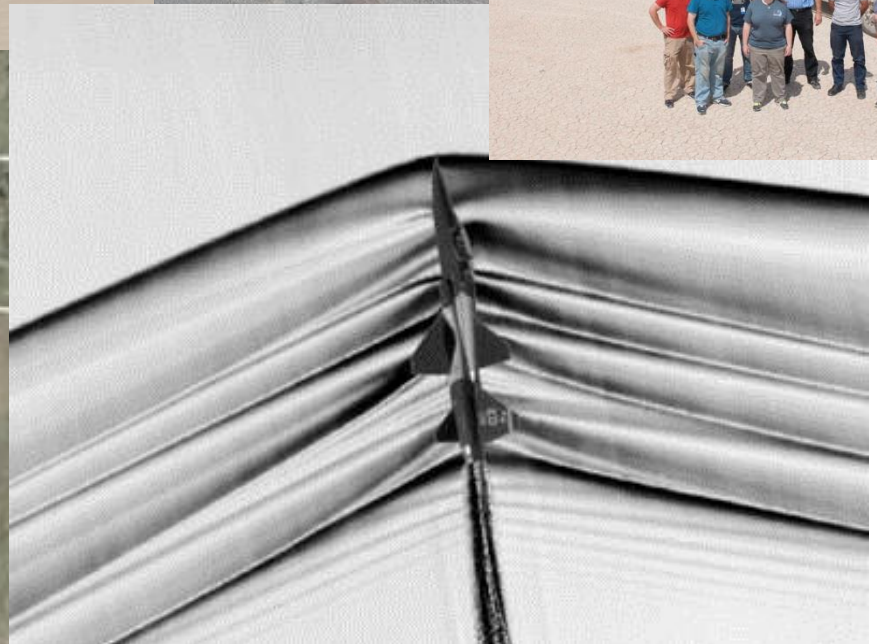
Ames Research Center (ARC)
Moffett Field, CA





NASA Centers - ARMD

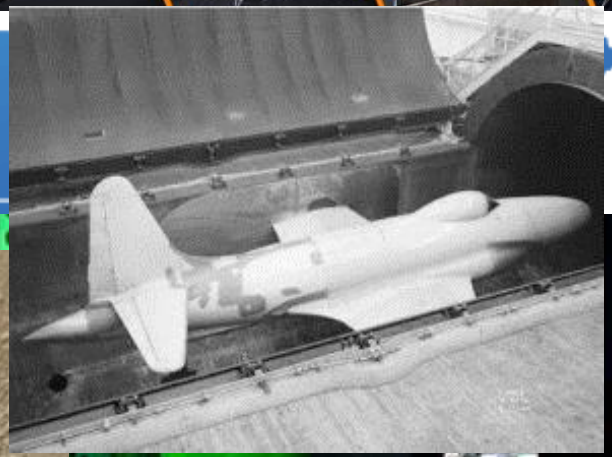
Armstrong Flight Research Center (AFRC)
Edwards, CA



NASA HQ

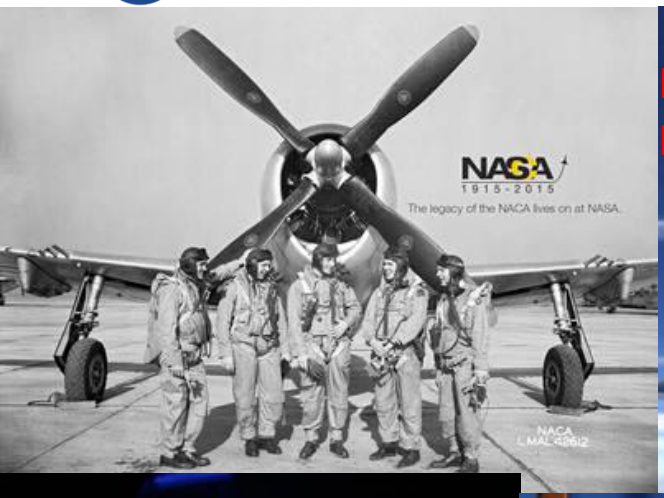
NASA Centers - ARMD

Glenn Research Center (GRC)
Cleveland, OH



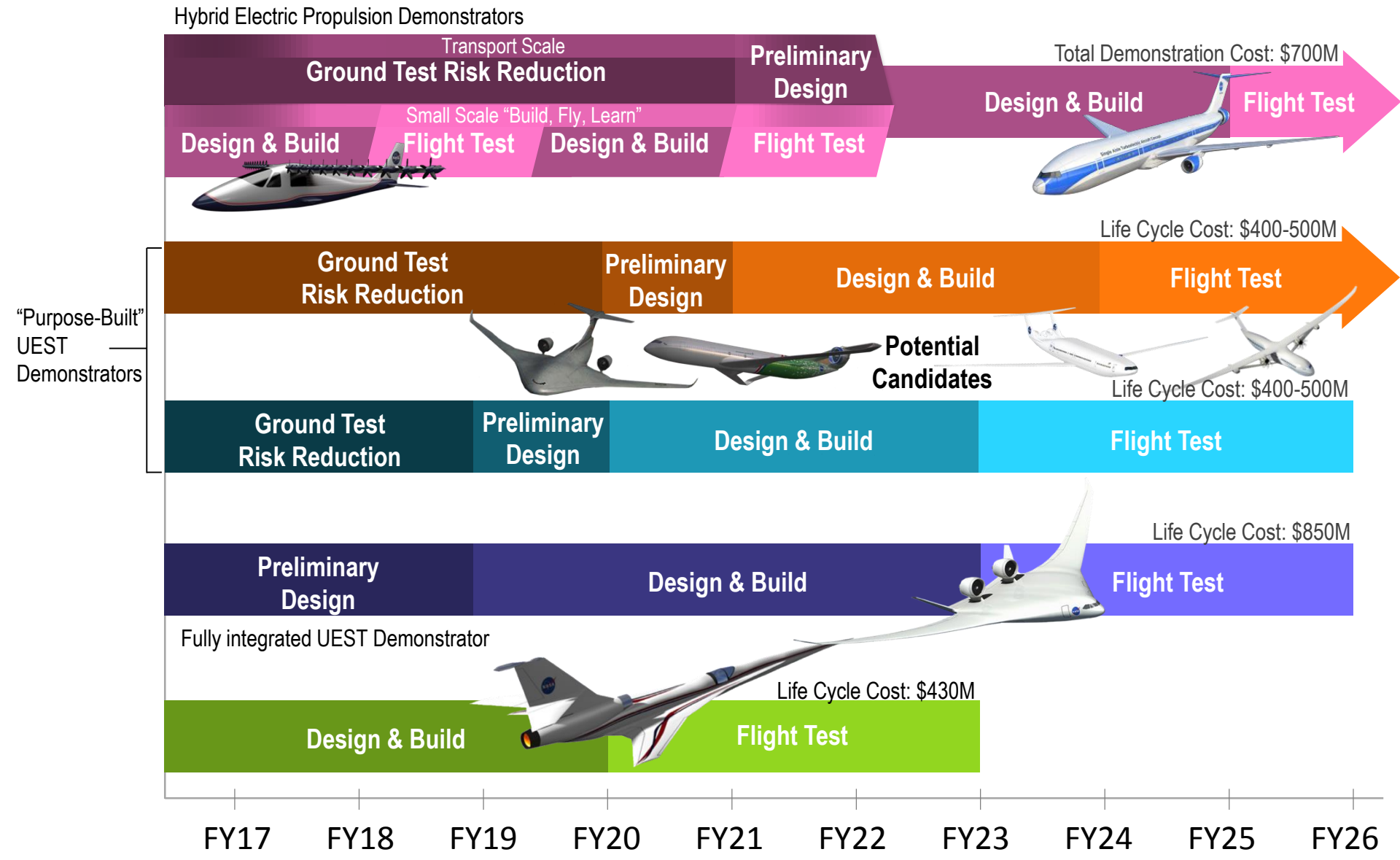
GSFC

NASA Centers - ARMD



Langley Research Center (LaRC)
Hampton, VA

New Aviation Horizons - Flight Demo Plan



Ultra-Efficient Subsonic Demonstrators

Closing Thoughts…

- Great deal of new work on the near horizon
- A Career at NASA…
- Questions?